

LAMPIRAN

LAMPIRAN

1. Uji Asumsi Dinamik

a. Unit Root Test (Level)

1. PDB (Y)

Null Hypothesis: PDB has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=7)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.843419	0.0065
Test critical values:		
1% level	-3.670170	
5% level	-2.963972	
10% level	-2.621007	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(PDB)
Method: Least Squares
Date: 08/01/18 Time: 21:56
Sample (adjusted): 1987 2016
Included observations: 30 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PDB(-1)	-0.689890	0.179499	-3.843419	0.0006
C	3.467891	1.122075	3.090604	0.0045
R-squared	0.345364	Mean dependent var		-0.028650
Adjusted R-squared	0.321984	S.D. dependent var		4.369053
S.E. of regression	3.597553	Akaike info criterion		5.462725
Sum squared resid	362.3868	Schwarz criterion		5.556138
Log likelihood	-79.94088	Hannan-Quinn criter.		5.492609
F-statistic	14.77187	Durbin-Watson stat		1.913030
Prob(F-statistic)	0.000638			

2. Ekspor Growth (X1)

Null Hypothesis: EKSPOR has a unit root
 Exogenous: Constant
 Lag Length: 0 (Automatic - based on SIC, maxlag=7)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-2.756228	0.0767
Test critical values:		
1% level	-3.670170	
5% level	-2.963972	
10% level	-2.621007	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(EKSPOR)
 Method: Least Squares
 Date: 08/01/18 Time: 21:59
 Sample (adjusted): 1987 2016
 Included observations: 30 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EKSPOR(-1)	-0.429998	0.156010	-2.756228	0.0102
C	12.40103	4.619516	2.684486	0.0121
R-squared	0.213412	Mean dependent var		-0.014407
Adjusted R-squared	0.185320	S.D. dependent var		6.216357
S.E. of regression	5.610861	Akaike info criterion		6.351626
Sum squared resid	881.4894	Schwarz criterion		6.445039
Log likelihood	-93.27439	Hannan-Quinn criter.		6.381510
F-statistic	7.596794	Durbin-Watson stat		2.264551
Prob(F-statistic)	0.010170			

3. Manufaktur (X2)

Null Hypothesis: MANUFACTURING has a unit root
 Exogenous: Constant
 Lag Length: 0 (Automatic - based on SIC, maxlag=7)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.175477	0.0316
Test critical values:		
1% level	-3.670170	
5% level	-2.963972	
10% level	-2.621007	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(MANUFACTURING)
 Method: Least Squares
 Date: 08/01/18 Time: 22:00
 Sample (adjusted): 1987 2016
 Included observations: 30 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
MANUFACTURING(-1)	-0.525391	0.165453	-3.175477	0.0036
C	3.182160	1.290034	2.466725	0.0200
R-squared	0.264776	Mean dependent var		-0.166591
Adjusted R-squared	0.238518	S.D. dependent var		4.663709
S.E. of regression	4.069688	Akaike info criterion		5.709350
Sum squared resid	463.7462	Schwarz criterion		5.802764
Log likelihood	-83.64026	Hannan-Quinn criter.		5.739234
F-statistic	10.08365	Durbin-Watson stat		2.003909
Prob(F-statistic)	0.003623			

4. Panjang Jalan (X3)

Null Hypothesis: LOG_PANJANG_JALAN has a unit root
 Exogenous: Constant
 Lag Length: 0 (Automatic - based on SIC, maxlag=7)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-2.827960	0.0664
Test critical values:		
1% level	-3.670170	
5% level	-2.963972	
10% level	-2.621007	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(LOG_PANJANG_JALAN)
 Method: Least Squares
 Date: 08/01/18 Time: 22:01
 Sample (adjusted): 1987 2016
 Included observations: 30 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG_PANJANG_JALAN(-1)	-0.054641	0.019322	-2.827960	0.0086
C	0.707427	0.235156	3.008332	0.0055
R-squared	0.222165	Mean dependent var		0.042677
Adjusted R-squared	0.194385	S.D. dependent var		0.040229
S.E. of regression	0.036108	Akaike info criterion		-3.740270
Sum squared resid	0.036506	Schwarz criterion		-3.646857
Log likelihood	58.10405	Hannan-Quinn criter.		-3.710386
F-statistic	7.997356	Durbin-Watson stat		2.147487
Prob(F-statistic)	0.008558			

5. Layanan Transportasi (X4)

Null Hypothesis: TRANSPORT_SERVICES has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=7)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-0.997227	0.7413
Test critical values:		
1% level	-3.670170	
5% level	-2.963972	
10% level	-2.621007	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(TRANSPORT_SERVICES)

Method: Least Squares

Date: 08/01/18 Time: 22:02

Sample (adjusted): 1987 2016

Included observations: 30 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TRANSPORT_SERVICES(-1)	-0.069896	0.070091	-0.997227	0.3272
C	0.985066	0.873479	1.127751	0.2690
R-squared	0.034298	Mean dependent var		0.338293
Adjusted R-squared	-0.000191	S.D. dependent var		3.204313
S.E. of regression	3.204619	Akaike info criterion		5.231404

Sum squared resid	287.5484	Schwarz criterion	5.324817
Log likelihood	-76.47106	Hannan-Quinn criter.	5.261288
F-statistic	0.994462	Durbin-Watson stat	1.851093
Prob(F-statistic)	0.327195		

b. Unit Root Test (*First Different*)

1. PDB (Y)

Null Hypothesis: D(PDB) has a unit root
 Exogenous: Constant
 Lag Length: 0 (Automatic - based on SIC, maxlag=7)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-6.744998	0.0000
Test critical values:		
1% level	-3.679322	
5% level	-2.967767	
10% level	-2.622989	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(PDB,2)
 Method: Least Squares
 Date: 08/01/18 Time: 22:06
 Sample (adjusted): 1988 2016
 Included observations: 29 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
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D(PDB(-1))	-1.254355	0.185968	-6.744998	0.0000
C	-0.005670	0.812509	-0.006978	0.9945
R-squared	0.627560	Mean dependent var		0.037532
Adjusted R-squared	0.613766	S.D. dependent var		7.040258
S.E. of regression	4.375358	Akaike info criterion		5.856326
Sum squared resid	516.8814	Schwarz criterion		5.950622
Log likelihood	-82.91672	Hannan-Quinn criter.		5.885858
F-statistic	45.49499	Durbin-Watson stat		2.160590
Prob(F-statistic)	0.000000			

2. Ekspor Growth (X1)

Null Hypothesis: D(EKSPOR) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=7)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-8.182906	0.0000
Test critical values: 1% level	-3.679322	
5% level	-2.967767	
10% level	-2.622989	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(EKSPOR,2)

Method: Least Squares

Date: 08/01/18 Time: 22:07

Sample (adjusted): 1988 2016

Included observations: 29 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(EKSPOR(-1))	-1.418092	0.173299	-8.182906	0.0000
C	-0.143748	1.075231	-0.133690	0.8946
R-squared	0.712644	Mean dependent var		-0.223854
Adjusted R-squared	0.702001	S.D. dependent var		10.60658
S.E. of regression	5.790057	Akaike info criterion		6.416634
Sum squared resid	905.1687	Schwarz criterion		6.510930
Log likelihood	-91.04119	Hannan-Quinn criter.		6.446166
F-statistic	66.95996	Durbin-Watson stat		2.122660
Prob(F-statistic)	0.000000			

3. Manufaktur (X2)

Null Hypothesis: D(MANUFACTURING) has a unit root

Exogenous: Constant

Lag Length: 1 (Automatic - based on SIC, maxlag=7)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-5.784614	0.0001
Test critical values:		
1% level	-3.689194	
5% level	-2.971853	
10% level	-2.625121	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(MANUFACTURING,2)
 Method: Least Squares
 Date: 08/01/18 Time: 22:10
 Sample (adjusted): 1989 2016
 Included observations: 28 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(MANUFACTURING(-1))	-1.713727	0.296256	-5.784614	0.0000
D(MANUFACTURING(-1),2)	0.351379	0.186107	1.888046	0.0707
C	-0.414586	0.853763	-0.485599	0.6315
R-squared	0.681099	Mean dependent var		-0.050754
Adjusted R-squared	0.655587	S.D. dependent var		7.680082
S.E. of regression	4.507185	Akaike info criterion		5.950180
Sum squared resid	507.8679	Schwarz criterion		6.092916
Log likelihood	-80.30252	Hannan-Quinn criter.		5.993816
F-statistic	26.69716	Durbin-Watson stat		2.066654
Prob(F-statistic)	0.000001			

4. Panjang Jaan (X3)

Null Hypothesis: D(LOG_PANJANG_JALAN) has a unit root
 Exogenous: Constant
 Lag Length: 0 (Automatic - based on SIC, maxlag=7)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.615535	0.0010
Test critical values:		
1% level	-3.679322	
5% level	-2.967767	

10% level

-2.622989

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(LOG_PANJANG_JALAN,2)
 Method: Least Squares
 Date: 08/01/18 Time: 22:11
 Sample (adjusted): 1988 2016
 Included observations: 29 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOG_PANJANG_JALAN(-1))	-0.882802	0.191268	-4.615535	0.0001
C	0.037976	0.011271	3.369422	0.0023
R-squared	0.441030	Mean dependent var		-9.88E-05
Adjusted R-squared	0.420328	S.D. dependent var		0.054320
S.E. of regression	0.041357	Akaike info criterion		-3.466664
Sum squared resid	0.046181	Schwarz criterion		-3.372368
Log likelihood	52.26663	Hannan-Quinn criter.		-3.437132
F-statistic	21.30316	Durbin-Watson stat		1.596315
Prob(F-statistic)	0.000086			

5. Layanan Transportasi

Null Hypothesis: D(TRANSPORT_SERVICES) has a unit root
 Exogenous: Constant
 Lag Length: 0 (Automatic - based on SIC, maxlag=7)

t-Statistic Prob.*

Augmented Dickey-Fuller test statistic		-5.004454	0.0004
Test critical values:	1% level	-3.679322	
	5% level	-2.967767	
	10% level	-2.622989	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(TRANSPORT_SERVICES,2)
 Method: Least Squares
 Date: 08/01/18 Time: 22:12
 Sample (adjusted): 1988 2016
 Included observations: 29 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(TRANSPORT_SERVICES(-1))	-0.962479	0.192324	-5.004454	0.0000
C	0.362402	0.619177	0.585295	0.5632
R-squared	0.481214	Mean dependent var		-0.000453
Adjusted R-squared	0.462000	S.D. dependent var		4.514653
S.E. of regression	3.311431	Akaike info criterion		5.299110
Sum squared resid	296.0706	Schwarz criterion		5.393406
Log likelihood	-74.83710	Hannan-Quinn criter.		5.328643
F-statistic	25.04456	Durbin-Watson stat		2.003276
Prob(F-statistic)	0.000030			

c. Hasil Kointegrasi

Dependent Variable: GDP
 Method: Least Squares
 Date: 08/01/18 Time: 21:45
 Sample: 1986 2016
 Included observations: 31

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-37.90825	11.30029	-3.354626	0.0024
EKSPOR	-0.021841	0.046434	-0.470361	0.6420
MANUFACTURING	0.846630	0.078299	10.81280	0.0000
LOG_PANJANG_JALAN	3.059423	0.893605	3.423687	0.0021
TRANSPORT_SERVICES	0.104587	0.035419	2.952870	0.0066
R-squared	0.914816	Mean dependent var		5.066559
Adjusted R-squared	0.901711	S.D. dependent var		3.659199
S.E. of regression	1.147197	Akaike info criterion		3.259210
Sum squared resid	34.21757	Schwarz criterion		3.490498
Log likelihood	-45.51775	Hannan-Quinn criter.		3.334604
F-statistic	69.80577	Durbin-Watson stat		2.310721
Prob(F-statistic)	0.000000			

d. Hasil ECT

Null Hypothesis: ECT has a unit root
 Exogenous: Constant
 Lag Length: 0 (Automatic - based on SIC, maxlag=7)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-6.367745	0.0000
Test critical values:		
1% level	-3.670170	
5% level	-2.963972	
10% level	-2.621007	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(ECT)
 Method: Least Squares
 Date: 08/01/18 Time: 22:23
 Sample (adjusted): 1987 2016
 Included observations: 30 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ECT(-1)	-1.176770	0.184802	-6.367745	0.0000
C	-0.027129	0.196020	-0.138399	0.8909
R-squared	0.591528	Mean dependent var		-0.053871
Adjusted R-squared	0.576940	S.D. dependent var		1.650289
S.E. of regression	1.073399	Akaike info criterion		3.043878
Sum squared resid	32.26119	Schwarz criterion		3.137291
Log likelihood	-43.65817	Hannan-Quinn criter.		3.073762
F-statistic	40.54818	Durbin-Watson stat		1.948913
Prob(F-statistic)	0.000001			

e. Hasil ECM

Dependent Variable: D(PDB)
 Method: Least Squares
 Date: 08/01/18 Time: 22:30
 Sample (adjusted): 1987 2016
 Included observations: 30 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.205214	0.270527	0.758572	0.4555
D(EKSPOR)	-0.158830	0.051046	-3.111497	0.0048
D(MANUFACTURING)	0.648004	0.065368	9.913113	0.0000
D(LOG_PANJANG_JALAN)	-2.647231	4.660680	-0.567992	0.5753
D(TRANSPORT_SERVICES)	0.030227	0.062600	0.482863	0.6336
ECT(-1)	-1.119917	0.179885	-6.225753	0.0000
R-squared	0.959828	Mean dependent var		-0.028650
Adjusted R-squared	0.951459	S.D. dependent var		4.369053
S.E. of regression	0.962589	Akaike info criterion		2.938475
Sum squared resid	22.23785	Schwarz criterion		3.218715
Log likelihood	-38.07713	Hannan-Quinn criter.		3.028126
F-statistic	114.6871	Durbin-Watson stat		1.508478
Prob(F-statistic)	0.000000			

2. Uji Asumsi Klasik

a. Autokorelasi

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.635087	Prob. F(2,24)	0.5386
Obs*R-squared	1.558178	Prob. Chi-Square(2)	0.4588

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 08/01/18 Time: 21:49

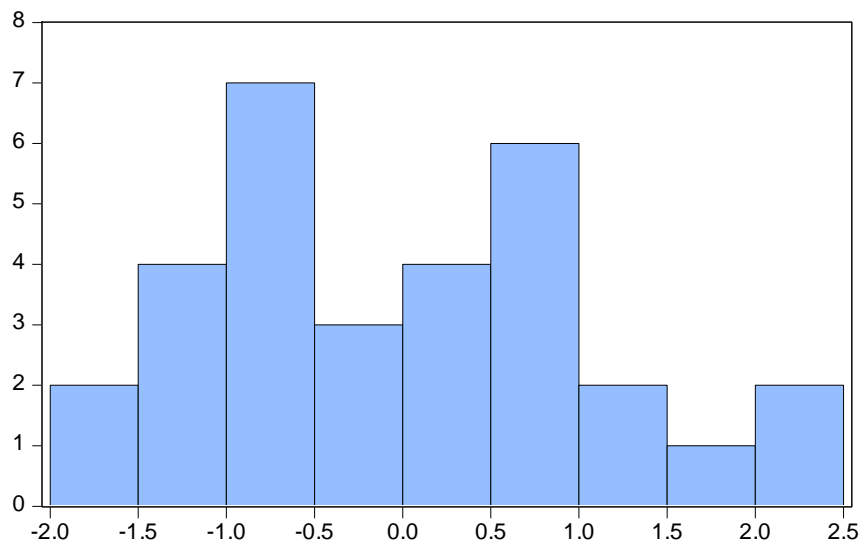
Sample: 1986 2016

Included observations: 31

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.343762	11.65038	0.201175	0.8423
EKSPOR	-0.000352	0.047958	-0.007344	0.9942
MANUFACTURING	-0.015096	0.080699	-0.187065	0.8532
LOG_PANJANG_JALAN	-0.189493	0.921962	-0.205533	0.8389
TRANSPORT_SERVICES	0.008647	0.036737	0.235366	0.8159
RESID(-1)	-0.223068	0.214278	-1.041017	0.3082
RESID(-2)	-0.137291	0.213460	-0.643169	0.5262
R-squared	0.050264	Mean dependent var		7.11E-15
Adjusted R-squared	-0.187170	S.D. dependent var		1.067982
S.E. of regression	1.163645	Akaike info criterion		3.336671
Sum squared resid	32.49767	Schwarz criterion		3.660475
Log likelihood	-44.71840	Hannan-Quinn criter.		3.442223
F-statistic	0.211696	Durbin-Watson stat		1.986986
Prob(F-statistic)	0.969535			

b. Normalitas



Series: Residuals	
Sample 1986 2016	
Observations 31	
Mean	7.11e-15
Median	-0.227401
Maximum	2.121662
Minimum	-1.827751
Std. Dev.	1.067982
Skewness	0.289302
Kurtosis	2.149842
Jarque-Bera	1.366004
Probability	0.505099

c. Heteroskedastisitas

Heteroskedasticity Test: White

F-statistic	1.260908	Prob. F(14,16)	0.3254
Obs*R-squared	16.26121	Prob. Chi-Square(14)	0.2977
Scaled explained SS	6.576342	Prob. Chi-Square(14)	0.9498

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 08/01/18 Time: 21:51

Sample: 1986 2016

Included observations: 31

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1415.032	1367.885	-1.034467	0.3163
EKSPOR	-2.716011	5.193726	-0.522941	0.6082
EKSPOR^2	0.007955	0.014269	0.557537	0.5849
EKSPOR*MANUFACTURING	-0.012321	0.062276	-0.197852	0.8457
EKSPOR*LOG_PANJANG_JALAN	0.181427	0.370983	0.489045	0.6314
EKSPOR*TRANSPORT_SERVICES	0.012372	0.019834	0.623767	0.5416
MANUFACTURING	20.43024	13.24865	1.542062	0.1426
MANUFACTURING^2	-0.041044	0.071204	-0.576427	0.5723
MANUFACTURING*LOG_PANJANG_JALAN	-1.639822	0.977707	-1.677212	0.1129
MANUFACTURING*TRANSPORT_SERVICE				
S	0.034930	0.043107	0.810306	0.4297
LOG_PANJANG_JALAN	232.0836	225.2399	1.030384	0.3182
LOG_PANJANG_JALAN^2	-9.442287	9.269305	-1.018662	0.3235

LOG_PANJANG_JALAN*TRANSPORT_SERVICES	0.572135	0.608032	0.940962	0.3607
TRANSPORT_SERVICES	-7.745329	7.833471	-0.988748	0.3375
TRANSPORT_SERVICES^2	0.002920	0.011329	0.257746	0.7999
R-squared	0.524555	Mean dependent var		1.103793
Adjusted R-squared	0.108541	S.D. dependent var		1.203169
S.E. of regression	1.135998	Akaike info criterion		3.399243
Sum squared resid	20.64785	Schwarz criterion		4.093108
Log likelihood	-37.68827	Hannan-Quinn criter.		3.625426
F-statistic	1.260908	Durbin-Watson stat		2.045601
Prob(F-statistic)	0.325354			

d. Multikolinearitas

	EKSPOR	MANUFACTURING	LOG_PANJANG_JALAN	TRANSPORT_SERVICES
EKSPOR	1.000000	-0.615445	0.033160	-0.216322
MANUFACTURING	-0.615445	1.000000	-0.524004	-0.287968
LOG_PANJANG_JALAN	0.033160	-0.524004	1.000000	0.653738
TRANSPORT_SERVICES	-0.216322	-0.287968	0.653738	1.000000

3. Gambaran Data

tahun	PDB %	Ekspor%	Manufacturing %	Panjang jalan	Layanan Transportasi %
1986	5.88	19.51	9.29	90787	4.620853081
1987	4.93	23.93	10.61	93778	3.849765258
1988	5.78	24.39	11.99	111649	3.214024836
1989	7.46	25.42	9.20	117079	2.88
1990	7.24	26.56	12.50	122966	2.813504823
1991	6.91	27.37	9.60	133846	2.870304748
1992	6.50	29.39	10.14	147755	2.624594515
1993	6.50	26.75	9.35	155219	1.134605467
1994	7.54	26.51	12.36	165368	0.747863248
1995	8.22	26.31	10.88	175105	0.673904905
1996	7.82	25.82	11.59	181179	0.588053234

1997	4.70	27.86	5.25	181315	0.588928151
1998	-13.13	52.97	-11.44	190683	0.138248848
1999	0.79	35.51	3.92	203499	0.089839349
2000	4.92	40.98	5.98	203214	0.079040314
2001	3.64	39.03	3.30	212879	0.074606631
2002	4.50	32.69	5.29	212531	16.22792679
2003	4.78	30.48	5.33	214308	16.63933122
2004	5.03	32.22	6.38	206144	18.32072345
2005	5.69	34.07	4.60	216714	22.48023588
2006	5.50	31.03	4.59	223343	24.10076733
2007	6.35	29.44	4.67	250280	20.91260425
2008	6.01	29.81	3.66	258744	21.0065569
2009	4.63	24.16	2.21	271230	21.17419515
2010	6.22	24.30	4.74	277755	16.53966546
2011	6.17	26.33	6.26	279351	16.21415044
2012	6.03	24.59	5.62	285252	16.56839155
2013	5.56	23.92	4.37	287926	16.16650846
2014	5.01	23.67	4.64	296476	16.54027382
2015	4.88	21.15	4.33	317119	16.00907782
2016	5.02	19.08	4.29	326629	15.19637305